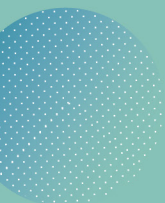




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Multiwavelength Variability Analysis of Fermi-LAT Blazars

by P. Peñil, et al. (including A. Domínguez)

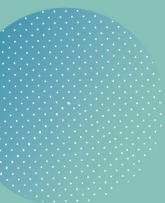
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Abstract

Blazars present highly variable γ -ray emission. This variability, which can range from a few minutes to several years, is also observed at other wavelengths across the entire electromagnetic spectrum. We make use of the first 12 years of data from the Fermi Large Area Telescope (LAT), complemented with multiwavelength (MWL) archival data from different observatories and facilities in radio, infrared and optical bands, to study the possible periodic emission from 19 blazars previously claimed as periodic candidates. A periodicity analysis is performed with a pipeline for periodicity searches. Moreover, we study the cross-correlations between the γ -ray and MWL light curves. Additionally, we use the fractional variability and the structure function to evaluate the variability timescales. We find five blazars showing hints of periodic modulation with $\geq 3.0\sigma$ ($\approx 0\sigma$ post-trials), with periods ranging from 1.2 to 4 years, both in their γ -ray and MWL emission. The results provide clues for understanding the physical mechanisms generating the observed periodicity.

